REMARKS

The last Office Action of May 14, 2004, has been carefully considered. Reconsideration of the instant application in view of the foregoing amendments and the following remarks is respectfully requested.

Claims 1-5 are pending in the application. Claim 1 has been amended. Claims 3 and 4 have been canceled. New claims 6-8 have been added. Claims 1, 2, and 5-8 remain in the application.

Claims 1, 3, and 4 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Pat. No. 6,205,040 to Teichmann.

Claim 2 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Teichmann in view of U.S. Pat. No. 6,005,787 to Mizukoshi.

Claim 5 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Teichmann in view of Yuan et al., cited in applicant's IDS.

REJECTION UNDER 35 U.S.C. §102(b)

Claim 1, as amended herein, is directed to an n-point-converter circuit which has two converter valves for each converter phase electrically connected in series at corresponding valve connection points. Each converter valve has (n-1) turn-off semiconductor switches. The circuit further includes a voltage intermediate circuit having (n-1) capacitors electrically connected in series at corresponding capacitor connection points, with each capacitor connection point

defining a corresponding DC potential. The circuit also has (n-2) cross arms, each cross arm having (n-1) semiconductor switches, of which at least two are anti-serially connected. Free ends of the series-connected converter valves form DC-side terminals, which are connected electrically in parallel with the voltage intermediate circuit. The (n-2) cross arms connect the valve connection point of each series-connected pair of the converter valves with a corresponding one of the intermediate potentials of the voltage intermediate circuit capacitor connection points.

By way of example, FIG. 1 of the instant application shows a 3-point converter circuit (n=3) with 2 converter valves (SRV1 and SRV2), 2 (=n-1) capacitors (C1 and C2), and 1 cross arm (QZ1) with 2 (=n-1) semiconductor switches (V3 and V4), in a topology as claimed in claim 1. Likewise, FIG. 3 shows a 4-point converter circuit (n=4) with 2 converter valves (SRV1 and SRV2), 3 (=n-1) capacitors (C1 and C2), and 2 (=n-2) cross arm (QZ1) with 3 (=n-1) semiconductor switches (V3 and V4), also in a topology as claimed in claim 1.

Teichmann discloses an Auxiliary Resonant Commutated Pole (ARCP) 3-point converter which includes, according to the embodiments depicted in Teichmann's FIGS. 1-6, 2 converter valves {(V_{C1}-V_{C2}; V_{C3}-V_{C4}) [FIGS. 1-5] and (V_{C1}-V_{C4}; V_{C5}-V_{C8}) [FIG. 6]}, 4 capacitors [FIGS. 1-5] and 8 capacitors [FIG. 6], respectively. Teichmann's circuit arrangement depicted in FIGS.1-3 includes 4 cross arms {S_{p-NPC}, S_{n-NPC}; S_{aux1}, S_{aux2}}. The circuit arrangement depicted in FIGS. 4 and 5 includes 5 cross arms {S_{p-NPC}, S_{n-NPC}; S_{aux1}, S_{aux2}, S_{aux3}}, whereas

the circuit arrangement depicted in FIG. 6 includes 10 cross arms {S_{p-NPC1}, ...,
S_{p-NPC3}, S_{n-NPC1}, ..., S_{n-NPC3}; S_{aux1}, ..., S_{aux4}},. Accordingly, the Teichmann's
number of the circuit elements and their topology is completely different from the
topology recited in claim 1 and explained in detail above.

Since Teichmann does not disclose, teach or suggest each and every
element and feature of the invention as recited in claim 1, withdrawal of the
rejection as being anticipated by Teichmann is respectfully requested. Mizukoshi
and Yuan also do not disclose or suggest n-point converters with the topology
recited in claim 1.

As for the rejection of the retained dependent claims 2 and 5, these claims
depend on claim 1, share its presumably allowable features, and therefore it is
respectfully submitted that these claims should also be allowed.

Withdrawal of the rejections under 35 U.S.C. §102(b) and 35 U.S.C.
§103(a) and allowance of claims 1, 2, and 5 is thus respectfully requested.

New claim 6 recites an n-point-converter circuit, which includes two
converter valves for each converter phase that are electrically connected in
series at corresponding valve connection points and having free ends forming
DC-side terminals, with each converter valve having (n-1) turn-off semiconductor
switches and a valve connection point. A voltage intermediate circuit with (n-1)
capacitors is electrically connected in series at (n-2) corresponding capacitor
connection points and is connected electrically in parallel with the DC-side
terminals, wherein each capacitor connection point defines a corresponding DC

potential. The circuit further includes (n-2) cross arms having turn-off cross arm semiconductor switches and connecting one of the (n-2) capacitor connection points with a corresponding valve connection point. The number of turn-off cross arm semiconductor switches in a cross arm is selected so that each cross arm that connects a valve connection point with a corresponding one of the intermediate potentials of the voltage intermediate circuit capacitor connection points has an identical number of turn-off cross arm semiconductor switches, whereby at least two of the turn-off cross arm semiconductor switches in a cross arm are anti-serially connected.

One example of a circuit of the type recited in claim 6 is shown in FIG. 4 of the instant application, which shows a 4-point (n=4) converter with two converter valves (SRV1 and SRV2), whereby each converter valve has 3 (=n-1) turn-off semiconductor switches {(V1a, V1b, V1c);(V2a, V2b, V2c)}. The intermediate circuit has 3 (=n-1) capacitors (C1, C2, C3) connected at two (=n-2) capacitor connection points (PP1, PP2), and 2 (=n-2) cross arms connecting the capacitor connection points (PP1, PP2) with corresponding valve connection points (SP1, SP2) of two turn-off semiconductor switches. The number of turn-off cross arm semiconductor switches is the same in each cross arm, and the switches {(V3, V4); (V6, V7)} are anti-serially connected.

Teichmann's converter with more than 3 points (5-point converter), shown in Teichmann's FIG. 6, also has an entirely different number of relevant components and topology than the n-point converter recited in claim 6. The major difference between the 5-point converter of the present invention, shown in

FIG. 5, and Teichmann's 5-point converter is that the converter of the present invention has half the number of capacitors in the voltage intermediate circuit and only three cross arms instead of the 10 cross arms disclosed in the Teichmann reference. In addition, the present invention does not require additional capacitors for the turn-off semiconductor switches.

As discussed *supra* with reference to claim 1, neither Teichmann nor Mizukoshi or Yuan therefore disclose, teach or suggest each and every element and feature of the invention as recited in claim 6; therefore claim 6 and the dependent claims 7 and 8 should be patentable over the art of record.

CITED REFERENCES

Applicant has also carefully scrutinized the further cited prior art and finds it without any relevance to the newly submitted claims. It is thus felt that no specific discussion thereof is necessary.
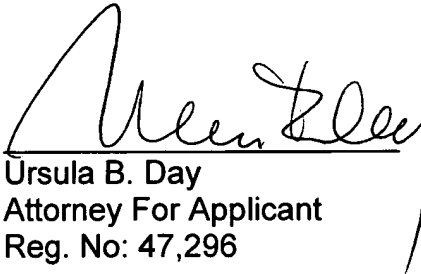
CONCLUSION

In view of the above presented remarks and amendments, it is respectfully submitted that all claims on file should be considered patentably differentiated over the art and should be allowed.

Reconsideration and allowance of the present application are respectfully requested.

Should the Examiner consider necessary or desirable any formal changes anywhere in the specification, claims and/or drawing, then it is respectfully requested that such changes be made by Examiner's Amendment, if the Examiner feels this would facilitate passage of the case to issuance. If the Examiner feels that it might be helpful in advancing this case by calling the undersigned, applicant would greatly appreciate such a telephone interview.

Respectfully submitted,

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